

# Notice of Allowability

Application No.

10/737,397

Examiner

Sylvia R. MacArthur

Applicant(s)

KELLEY, CHRISTOPHER L.

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment dated 5/21/2007.
2. ☒ The allowed claim(s) is/are 1-9, 19 and 20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 8-1-2007.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Rose Keagy on 7-31-2007.

2. The application has been amended as follows:

Claims 10-18 have been cancelled.

The title has been changed to: "Temperature Control Assembly for Use in Etching Processes"

3. Claims 1 and 19 have been amended as follows:

1. (Currently amended) A temperature control assembly comprising:  
a housing of generally annular cross-section, wherein the housing  
comprises:  
an aperture generally disposed along a center axis of the housing;

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a first side disposed between the aperture and an outside edge of the housing and including a surface generally perpendicular to the center axis;

a channel disposed through the surface;

a second side disposed between the aperture and the outside edge and having a reflective appearance;

a plurality of sockets disposed between the surface and the second side and formed to accept a plurality of heating elements; and

a flange disposed along the first side and having a plurality of holes arranged substantially to align the temperature control assembly for use in an etching process chamber assembly and to position the second side to face toward a process chamber of the etching process chamber assembly; a cooling conduit formed from a non-corrosive metallic material, wherein the cooling conduit is disposed along a groove created in the first side, disposed within the channel, and disposed adjacent to generally encircling the aperture; a plurality of fasteners coupled to the housing and operable to associate the cooling conduit with the housing; and a mounting block coupled to the cooling conduit.

19. (Currently Amended) A temperature control assembly comprising:

a housing of generally annular cross-section, wherein the housing comprises:

an aperture generally disposed along a center axis of the housing;

a first side disposed between the aperture and an outside edge of

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the housing and including a surface generally perpendicular to the center axis;

a channel disposed through the surface;

a second side disposed between the aperture and the outside edge and having a reflective appearance;

a plurality of sockets disposed between the surface and the second side and formed to accept a plurality of heating elements; and

a flange disposed along the first side and having a plurality of holes arranged substantially to align the temperature control assembly for use in an etching process chamber assembly and to position the second side to face toward a process chamber of the etching process chamber assembly;

a cooling conduit formed from a non-corrosive metallic material, wherein the cooling conduit is disposed along a groove created in the first side, disposed within the channel, and disposed adjacent to generally encircling the aperture;

a plurality of fasteners coupled to the housing and operable to associate the cooling conduit with the housing, wherein the plurality of fasteners comprises:

a plurality of first fasteners disposed within a plurality of cavities,

wherein the cavities are formed in the surface such that the first fasteners

disposed within the cavities do not extend past the surface, and wherein the vertical distance

between the bottom of each of the cavities and the bottom of the channel is less than the vertical

distance between the top of the cooling conduit as it rests in the channel and the bottom of the

channel, such that when coupled to the housing the first fasteners associate the cooling conduit

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with the housing by clamping the cooling conduit within the channel; and  
a plurality of second fasteners disposed along the housing adjacent to the groove such that the second fasteners do not extend past the surface, and wherein the second fasteners each include a curved surface that engages the outside surface of the cooling conduit, the curved surface having a shorter radius than the outside surface, such that when coupled to the housing the second fasteners associate the cooling conduit with the housing by clamping the cooling conduit against the housing; and  
a mounting block formed from a metal complementary to the non-corrosive metallic material and coupled to the cooling conduit.

4. Claims 1-9, 19, and 20 have been allowed.

#### **REASONS FOR ALLOWANCE**

5. The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or fairly suggest a cooling conduit that is disposed along a groove created in the first side, disposed within the channel, and disposed generally encircling the aperture. Furthermore, the prior art of record fails to teach or fairly suggest a mounting block coupled to the cooling conduit as recited in claims 1 and 19.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Sylvia R MacArthur  
Primary Examiner  
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August 1, 2007

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This listing of claims will replace all prior versions:

1. (Currently amended) A temperature control assembly comprising:

a housing of generally annular cross-section, wherein the housing

comprises:

an aperture generally disposed along a center axis of the housing;

a first side disposed between the aperture and an outside edge of the housing and including a surface generally perpendicular to the center axis;

a channel disposed through the surface;

a second side disposed between the aperture and the outside edge and having a reflective appearance;

a plurality of sockets disposed between the surface and the second side and formed to accept a plurality of heating elements; and

a flange disposed along the first side and having a plurality of holes arranged substantially to align the temperature control assembly for use in an etching process chamber assembly and to position the second side to face toward a process chamber of the etching process chamber assembly;

a cooling conduit formed from a non-corrosive metallic material, wherein the cooling conduit is disposed along a groove created in the first side, disposed within the channel, and disposed adjacent to generally encircling the aperture;

a plurality of fasteners coupled to the housing and operable to associate the cooling conduit with the housing; and

a mounting block coupled to the cooling conduit.

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2. (Original) The temperature control assembly of Claim 1, wherein the plurality of fasteners comprises:

a plurality of first fasteners disposed within a plurality of cavities, wherein the cavities are formed in the surface such that the first fasteners disposed within the cavities do not extend past the surface; and

a plurality of second fasteners disposed along the housing adjacent to the groove such that the second fasteners do not extend past the surface.

3. (Original) The temperature control assembly of Claim 2, wherein the vertical distance between the bottom of each of the cavities and the bottom of the channel is less than the vertical distance between the top of the cooling conduit as it rests in the channel and the bottom of the channel, such that when coupled to the housing the first fasteners associate the cooling conduit with the housing by clamping the cooling conduit within the channel.

4. (Original) The temperature control assembly of Claim 2, wherein the second fasteners each include a curved surface that engages the outside surface of the cooling conduit, the curved surface having a shorter radius than the outside surface, such that when coupled to the housing the second fasteners associate the cooling conduit with the housing by clamping the cooling conduit against the housing.

5. (Original) The temperature control assembly of Claim 1, wherein the housing is formed of aluminum.

6. (Original) The temperature control assembly of Claim 1, wherein the non-corrosive metallic material is copper.

7. (Original) The temperature control assembly of Claim 1, wherein the non-corrosive metallic



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material is stainless steel.

8. (Original) The temperature control assembly of Claim 1, wherein the mounting block is formed from a metal complementary to the non-corrosive metallic material.

9. (Original) The temperature control assembly of Claim 1, wherein the groove has a radius substantially equal to the radius of the cooling conduit.

10. (Withdrawn) A method for retrofitting a temperature control assembly, comprising:  
removing an original cooling mechanism from a temperature control assembly, the temperature control assembly comprising a housing and wherein the housing comprises:  
an aperture generally disposed along a center axis of the housing;  
a first side disposed between the aperture and an outside edge of the housing and including a surface generally perpendicular to the center axis; a channel disposed through the surface;  
a second side disposed between the aperture and the outside edge and having a reflective appearance;  
a plurality of sockets disposed between the surface and the second side and formed to accept a plurality of heating elements; and  
a flange disposed along the first side and having a plurality of first holes arranged substantially to align the temperature control assembly for use in an etching process chamber assembly and to position the second side to face toward a process chamber of the etching process chamber assembly;  
creating a plurality of cavities in the surface adjacent to the channel; drilling and tapping a plurality of second holes in the plurality of cavities; creating a groove disposed along the first

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side;

drilling and tapping a plurality of third holes in the first side adjacent to the groove;

selecting a retrofit cooling conduit formed from a non-corrosive metallic material;

disposing the retrofit cooling conduit along the groove and within the channel;

coupling a plurality of fasteners to the housing using the second holes and the third holes to

associate the retrofit cooling conduit with the housing such that the fasteners do not extend past the surface;

selecting a retrofit mounting block; and

coupling the retrofit mounting block to the retrofit cooling conduit.

11. (Withdrawn) The retrofitting method of Claim 10, wherein removing the original cooling mechanism from the temperature control assembly comprises machining the temperature control assembly to disassociate the original cooling mechanism from the temperature control assembly.

12. (Withdrawn) The retrofitting method of Claim 10, wherein the groove has a radius substantially equal to the radius of the cooling conduit.

13. (Withdrawn) The retrofitting method of Claim 10, wherein creating the plurality of cavities in the surface adjacent to the channel comprises machining the plurality of cavities into the surface.

14. (Withdrawn) The retrofitting method of Claim 10, wherein the plurality of fasteners comprises:

a plurality of first fasteners disposed within the plurality of cavities, wherein the vertical distances between the bottoms of the cavities and the bottom of the channel are less than the vertical distance between the top of the cooling conduit as it rests in the channel and the bottom

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of the channel, such that that when coupled to the housing the plurality of first fasteners associates the cooling conduit with the housing by clamping the cooling conduit within the channel; and

a plurality of second fasteners that include curved surfaces that engage the outside surface of the cooling conduit, the curved surfaces having shorter radii than the outside surface, such that when coupled to the housing the plurality of second fasteners associates the cooling conduit with the housing by clamping the cooling conduit against the housing.

15. (Withdrawn) The retrofitting method of Claim 10, wherein the non\corrosive metallic material is copper.

16. (Withdrawn) The retrofitting method of Claim 10, wherein the non\corrosive metallic material is stainless steel.

17. (Withdrawn) The retrofitting method of Claim 10, wherein the retrofit mounting block is formed from a metal complementary to the non-corrosive metallic material.

18. (Withdrawn) The retrofitting method of Claim 17, wherein coupling the retrofit mounting block to the retrofit cooling conduit comprises soldering the retrofit mounting block and the retrofit cooling conduit.

19. (Currently Amended) A temperature control assembly comprising:  
a housing of generally annular cross-section, wherein the housing comprises:

an aperture generally disposed along a center axis of the housing;

a first side disposed between the aperture and an outside edge of the housing and including a surface generally perpendicular to the center

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axis;

a channel disposed through the surface;

a second side disposed between the aperture and the outside edge

and having a reflective appearance;

a plurality of sockets disposed between the surface and the second side and formed to accept a plurality of heating elements; and

a flange disposed along the first side and having a plurality of holes arranged substantially to align the temperature control assembly for use in an etching process chamber assembly and to position the second side to face toward a process chamber of the etching process chamber assembly; a cooling conduit formed from a non-corrosive metallic material, wherein the cooling conduit is disposed along a groove created in the first side, disposed within the channel, and disposed adjacent to generally encircling the aperture;

a plurality of fasteners coupled to the housing and operable to associate the cooling conduit with the housing, wherein the plurality of fasteners comprises:

a plurality of first fasteners disposed within a plurality of cavities,

wherein the cavities are formed in the surface such that the first fasteners

disposed within the cavities do not extend past the surface, and wherein the vertical distance between the bottom of each of the cavities and the bottom of the channel is less than the vertical distance between the top of the cooling conduit as it rests in the channel and the bottom of the channel, such that when coupled to the housing the first fasteners associate the cooling conduit with the housing by clamping the cooling conduit within the channel; and

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a plurality of second fasteners disposed along the housing adjacent to the groove such that the second fasteners do not extend past the surface, and wherein the second fasteners each include a curved surface that engages the outside surface of the cooling conduit, the curved surface having a shorter radius than the outside surface, such that when coupled to the housing the second fasteners associate the cooling conduit with the housing by clamping the cooling conduit against the housing; and

a mounting block formed from a metal complementary to the non-corrosive metallic material and coupled to the cooling conduit.

20. (Original) The temperature control assembly of Claim 19, wherein the housing is formed of aluminum and the non-corrosive metallic material is copper.